

**CLAIMS**

1. Process for the manufacture of aqueous suspensions of brochantite ( $\text{Cu}_4(\text{OH})_6\text{SO}_4$ ) or antlerite ( $\text{Cu}_3(\text{OH})_4\text{SO}_4$ ) or a mixture of both, having a content by weight of solids greater than 10%, by reacting an aqueous solution of copper sulphate  $\text{CuSO}_4$  with an aqueous suspension of copper oxide or copper hydroxide used in a total  $\text{SO}_4/\text{Cu}$  molar ratio ranging from 0.25 to 0.40, the said process being characterized in that an aqueous solution of  $\text{CuSO}_4$  having a concentration by weight of copper of between 6% and 10% is mixed with an aqueous suspension of copper oxide or copper hydroxide having a concentration of between 15% and 50% by weight and in which the mean diameter of the solid particles is less than 25  $\mu\text{m}$ , the reaction being carried out at a controlled temperature of between 40°C and 100°C.

2. Process according to Claim 1, characterized in that the aqueous suspension of copper oxide or copper hydroxide additionally contains copper sulphate.

3. Process according to Claim 1 or 2, characterized in that the mean diameter of the solid particles of the aqueous suspension of copper oxide or copper hydroxide is between 0.1 and 10  $\mu\text{m}$ , preferably between 0.5 and 5  $\mu\text{m}$ .

4. Process according to one of Claims 1 to 3, characterized in that the wet sieving residue at 25  $\mu\text{m}$  of the solid particles of the suspension of copper oxide or copper hydroxide relative to the dry extract is less than 5% by weight, preferably less than 2% by weight.

5. Process according to one of Claims 1 to 4, characterized in that the aqueous solution of  $\text{CuSO}_4$  has a copper concentration by weight of between 6.5% and 8%, preferably between 6.6% and 7.6%.

6. Process according to one of Claims 1 to 5, characterized in that the aqueous suspension of copper oxide or copper hydroxide has a concentration of between 20% and 30% by weight.

7. Process according to one of Claims 1 to 6, characterized in that the copper oxide is copper(II) oxide  $\text{CuO}$ .

8. Process according to one of Claims 1 to 7, characterized in that at the end of the reaction, the excess copper sulphate is removed by filtration or neutralized with the aid of an organic or inorganic base.

9. Process according to Claim 8, characterized in that the neutralization of the excess copper sulphate is carried out with the aid of an organic base such as a salt of carboxylic or polycarboxylic acid in which the cation is the sodium

ion, the potassium ion or the ammonium ion, or an amine, or with the aid of an inorganic base such as sodium hydroxide, potassium hydroxide, lime, aqueous ammonia or sodium or potassium carbonate.

5                   10. Process for the manufacture of aqueous suspensions of brochantite having a solids content by weight greater than 10%, by reacting an aqueous solution of copper sulphate  $\text{CuSO}_4$  with an aqueous suspension of copper oxide or copper hydroxide used in  
10 a total  $\text{SO}_4/\text{Cu}$  molar ratio ranging from 0.25 to 0.34, according to one of Claims 1 to 9, characterized in that, after mixing the reagents, the reaction medium is kept at an initial temperature of less than or equal to  $60^\circ\text{C}$  for a period of between one hour and 3 hours, and  
15 then the reaction medium is brought to a higher temperature which is maintained for at least one hour.

11. Process according to Claim 10, characterized in that the initial temperature is preferably between  $40^\circ\text{C}$  and  $60^\circ\text{C}$ .

20                   12. Process according to Claim 10 or 11, characterized in that the higher temperature to which the reaction medium is brought is at most equal to  $100^\circ\text{C}$ , preferably between  $65^\circ\text{C}$  and  $80^\circ\text{C}$ .

13. Process for the manufacture of aqueous  
25 suspensions of brochantite, antlerite or a mixture of both having a solids content by weight greater than 10%, by reacting an aqueous solution of copper sulphate

CuSO<sub>4</sub> with an aqueous suspension of copper oxide or copper hydroxide used in a total SO<sub>4</sub>/Cu molar ratio ranging from 0.33 to 0.40 according to one of Claims 1 to 9, characterized in that, after mixing the reagents, 5 the reaction medium is kept at an initial temperature at most equal to 100°C for a period of between 0.5 hour and 3 hours.

14. Process according to Claim 13, characterized in that the initial temperature is 10 between 70°C and 100°C, preferably between 80°C and 90°C.

15. Process for the preparation of cupric fungicidal compositions in the form of suspension concentrates, suspo-emulsions, dispersible granules or 15 wettable powders dispersible in water, characterized in that an aqueous suspension of brochantite or antlerite or a mixture of both, as prepared according to one of the Process Claims 1 to 14, is used.

16. Cupric fungicidal compositions which can 20 be obtained by the process according to Claim 15, characterized in that they additionally contain one or more adjuvants such as a dispersing agent, a wetting agent, an antifoaming agent, a colorant, a thickener, a pH regulator or fillers, the copper content of the said 25 compositions being between 30 and 45%.

17. Cupric fungicidal compositions which can be obtained by the process according to Claim 15,

characterized in that they additionally contain one or more adjuvants such as a dispersing agent, a wetting agent, an antifoaming agent, a colorant, a thickener, a pH regulator or fillers and at least one synthetic  
5 fungicide, the copper content of the said compositions being between 15 and 40%, preferably between 18 and 40%.

18. Cupric fungicidal compositions according to Claim 17, characterized in that the synthetic  
10 fungicide is chosen from mancozeb, maneb, zineb, cymoxanil, famoxadone or benthiavalicarb.

19. Use of a fungicidal composition according to one of Claims 15 to 18, for the fungicidal treatment of crops.